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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/031,231	01/17/2002	Terence Widdowson	36-1535	8193
23117	7590	06/27/2006	EXAMINER	
NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203			GHULAMALI, QUTBUDDIN	
			ART UNIT	PAPER NUMBER
			2611	

DATE MAILED: 06/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.



### **DETAILED ACTION**

1. This Office Action is responsive to applicant's Remarks/Amendments filed on 06/09/2006.

#### **Response to Submission After Final**

2. Applicant's amendment filed June 09, 2006 (see pages 2-6) in response to the rejection of claims 1, 2, 4-11 and 13, has been fully considered. However, they do not advance the case to issue. However, the Finality of Office Action dated December 14, 2005, is hereby withdrawn in view of new ground of rejection. Applicant's first submission after final filed on 06/09/2006 has been entered.

#### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 2, 4-11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moore, III (USP 6,148,021) in view of Kumar (USP 6,005,894).

Regarding claim 1, Moore discloses generating a single sideband spread spectrum signal (col. 2, lines 12-28; col. 4, lines 28-30) comprising:

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- i) generating a complex spreading signal (col. 3, lines 30-37; col. 4, lines 8-15; col. 7, lines 15-19);
  - ii) phase-shifting a complex spreading signal to produce a phase-shifted complex spreading signal (col. 4, lines 28-45);
  - iii) up converting the complex spreading signal and the phase-shifted complex spreading signal to a higher frequency (frequency translating) to produce the single sideband spread spectrum signal (col. 3, lines 30-49; col. 5, lines 55-64; col. 7, lines 34-37);
  - iv) band limiting (frequency translating) one of at least the complex spreading signal or the single sideband spread spectrum signal (col. 3, lines 58-67); and
  - v) modulating one of the complex spreading signal or the single sideband spread spectrum signal with the input signal (col. 4, lines 28-35, 41-45),
- wherein the phase shifting step is performed before the upconversion step.

Even though Moore discloses phase shifting a complex signal to produce a phase shifted complex spreading signal, Moore however does not explicitly disclose the phase shifting in accordance with a Hilbert transform. Kumar in a similar field of endeavor discloses use of Hilbert transform in frequency shifting signal (the function of Hilbert transform in a circuit is to cause a phase-shift of about 90 degree for substantially all frequencies in digitized and analog signal is well known in the art) (col.28, lines 53-59; col. 29, lines 14-25). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Hilbert transform for creating a shift in frequency as taught by Kumar in the circuit of Moore because it can allow latency or

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shift in signals to be adequately maintained for a substantially quadrature phase relationship.

Regarding claim 2, Moore discloses modulating a signal of the up converted complex signal in accordance with the real part of the complex signal combined with the Imaginary part of the phase shifted complex signal (I and Q) (col. 4, lines 28-35); and modulating a quadrature signal of the up converted complex signal in accordance with the imaginary pan of the complex signal combined with the real part of the phase shifted complex signal (col. 4, lines 28-45).

Regarding claim 4, Moore discloses bandlimiting is performed prior to the phase shifting (col. 3, lines 60-67).

Regarding claim 5, Kumar discloses bandlimiting is performed after the up conversion (col. 3, lines 58-67; col. 4, lines 20-27).

Regarding claim 6, Kumar discloses modulation is performed after the up conversion (col. 4, lines 39-45).

As to claim 7, claim 7 is an apparatus claim corresponding to method claim 1 and recites substantially very similar limitations and therefore is similarly analyzed as method claim 1 above.

With reference to claim 8, Moore discloses the band-limiting filter is a low pass filter (col. 4, lines 20-27) connected to receive the output of the complex spreading signal generator (col. 7, lines 40-60).

Regarding claim 9, Kumar discloses the band-limiting filter is a band-pass filter (fig. 11, elements 95) connected to receive the output of the complex modulator (col. 21, lines 25-29, 46-50).

Regarding claim 10, Moore discloses the data modulator is coupled to receive a second signal via the complex modulator (col. 4, lines 1-21).

As per claim 11, Moore discloses a method of decoding single sideband signal comprising:

upconverting the complex spreading signal to a higher frequency (col. 3, lines 30-49; col. 5, lines 55-64; col. 7, lines 34-37);and

demodulating a received signal in accordance with the upconverted complex spreading signal (col. 5, lines 55-64).

Regarding claim 13, Moore discloses an apparatus for decoding a transmitted spread spectrum signal comprises:

a complex spreading signal generator (col. 3, lines 30-37; col. 4, lines 8-15; col. 7, lines 15-19);

a phase-shifter connected to receive the complex spreading signal from the complex spreading signal generator (col. 4, lines 6-15);

a complex modulator connected to receive the phase-shifted complex spreading signal from the phase shifter and arranged in operation to upconvert the complex spreading signal (col. 4, lines 28-35); and

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a data demodulator connected to receive the transmitted signal and the upconverted complex spreading signal and arranged in operation to demodulate the transmitted signal to provide a decoded transmitted signal (col. 5, lines 40-64).

***Allowable Subject Matter***

5. Claims 3 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patents:

US Patent (6,490,267) to Kim et al.

US Patent (6,377,539) to Kang et al.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qutub Ghulamali whose telephone number is (571) 272-3014. The examiner can normally be reached on Monday-Friday, 7:00AM - 4:30PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021. The fax phone

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number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

QG.  
Examiner AU-2611.  
June 22, 2006.

  
JEAN B. CORRIELUS  
PRIMARY EXAMINER  
6-22-06